

3.6 Regression

Investigate p 170

Curve of Best Fit- Quadratic Regression

$$a = -5 \quad b = 25 \quad c = 30$$

$$f(x) = -5x^2 + 25x + 30$$

$$R^2 = 1.0 \Rightarrow 100\% \text{ confidence}$$

Appendix p 564 & 565 Creating the Curve of Best Fit

Oct 12-8:11 AM

INVESTIGATE the Math

p. 170

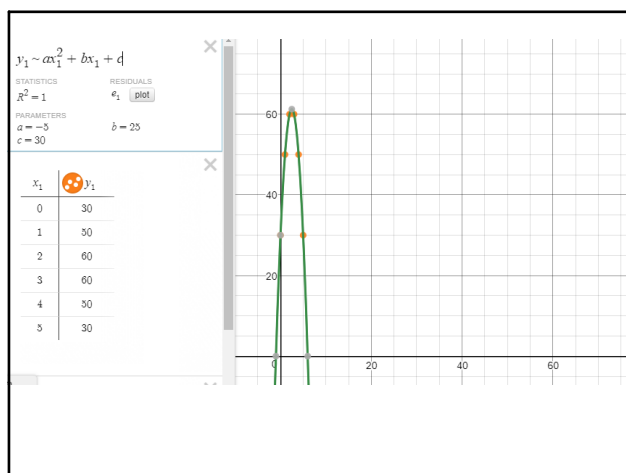
A ball is thrown into the air from the top of a building. The table of values gives the height of the ball at different times during the flight.

Time (s)	0	1	2	3	4	5
Height (m)	30	50	60	60	50	30

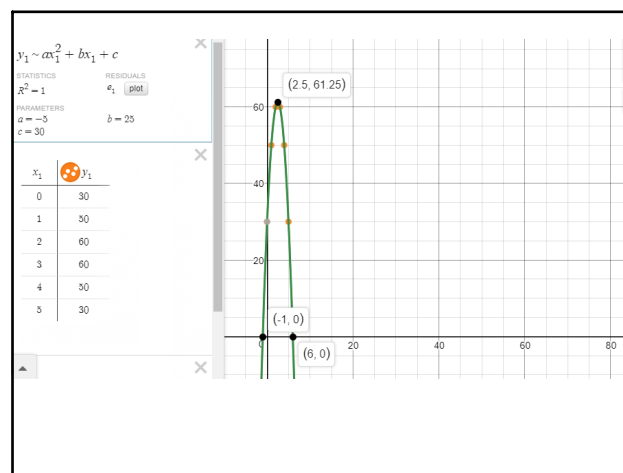
❓ What is a function that will model the data?

- Create a scatter plot, with an appropriate scale, from the data.
- What shape best describes the graph? Draw a **curve of good fit**.
- Extend the graph to estimate the location of the zeros.
- Use the zeros to write an equation in factored form.
- In what direction does the parabola open? What does this tell you?
- Using one of the points in the table, calculate the coefficient of x^2 . Write the equation for the data in factored form and in standard form.
- Using a graphing calculator and **quadratic regression**, determine the quadratic function model.

Oct 12-9:28 AM



Oct 2-9:51 AM



Oct 2-9:57 AM

Reflecting

- How does the factored form of an equation help you determine the curve of good fit?
- How will you know whether the equation is a good representation of your data?
- How would your model change if it has only one zero? What if the model has no zeros?

Quadratic Reg

$$y = a(x-s)(x-t)$$

$$a = -5 \quad y = a(x+1)(x-6)$$

$$b = 25 \quad (5, 30)$$

$$c = 30 \quad 30 = a(5+1)(5-6)$$

$$R^2 = 1.0 \Rightarrow 100\% \text{ confidence}$$

$$30 = a(6)(-1)$$

$$f(x) = -5x^2 + 25x + 30$$

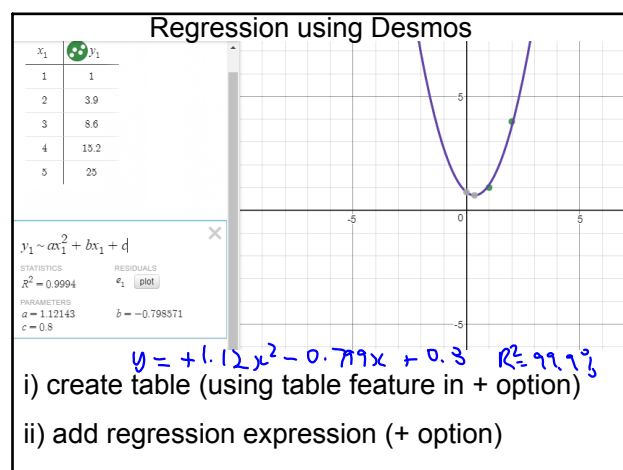
$$30 = -6a$$

$$-5 = a$$

$$y = -5(x+1)(x-6)$$

DESMS

Oct 12-9:29 AM



Oct 4-7:39 AM

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p 177 2b)

Oct 12-10:32 AM

Oct 2-10:13 AM